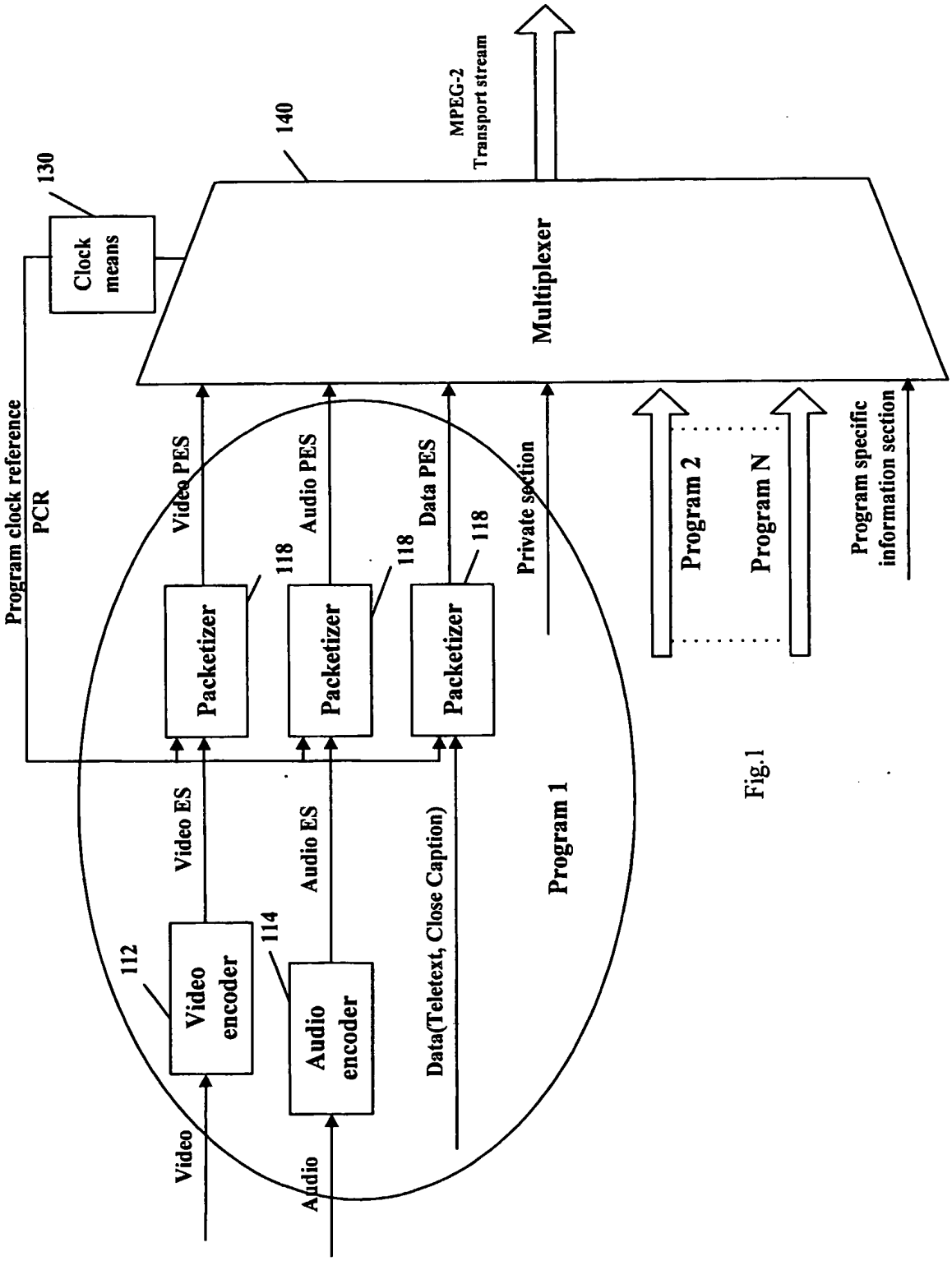
MPEG-2
Transport stream
140
130
Clock means
Multiplexer
Program clock reference
PCR
Video PES
Audio PES
Data PES
Private section
Program 2
Program N
Program specific information section
118
118
118
Packetizer
Packetizer
Packetizer
Video ES
Audio ES
Data(Teletext, Close Caption)
Program 1
112
114
Video encoder
Audio encoder
Video
Audio

Fig.1

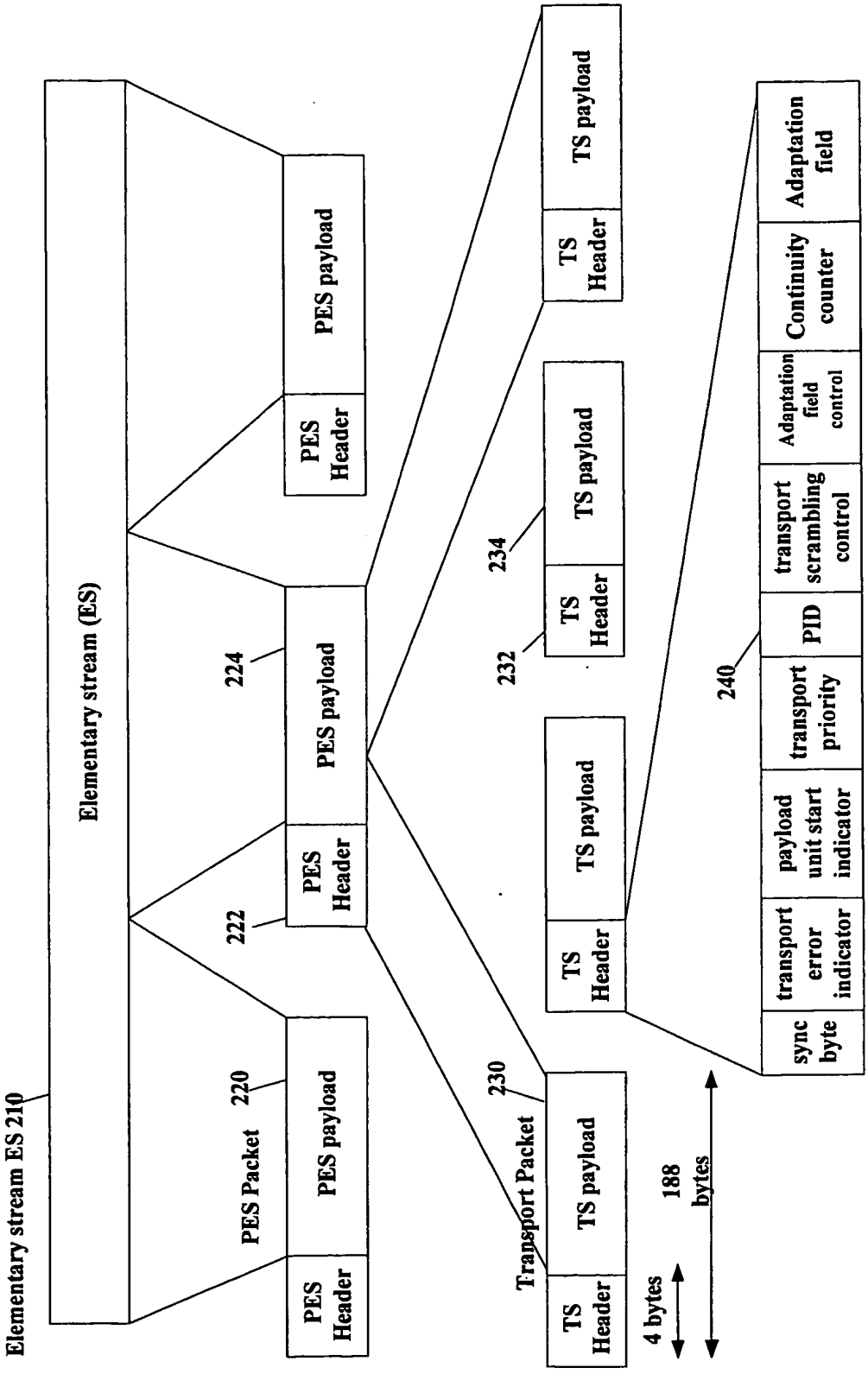
Elementary stream ES 210
Elementary stream (ES)
PES Packet
220
PES payload
PES Header
222
224
PES payload
PES Header
230
Transport Packet
TS payload
TS Header
232
TS payload
TS Header
234
TS payload
TS Header
240
sync byte
transport error indicator
payload unit start indicator
transport priority
PID
transport scrambling control
Adaptation field control
Continuity counter
Adaptation field
8
1
1
1
13
2
2
4
4 bytes
188 bytes

Fig.2

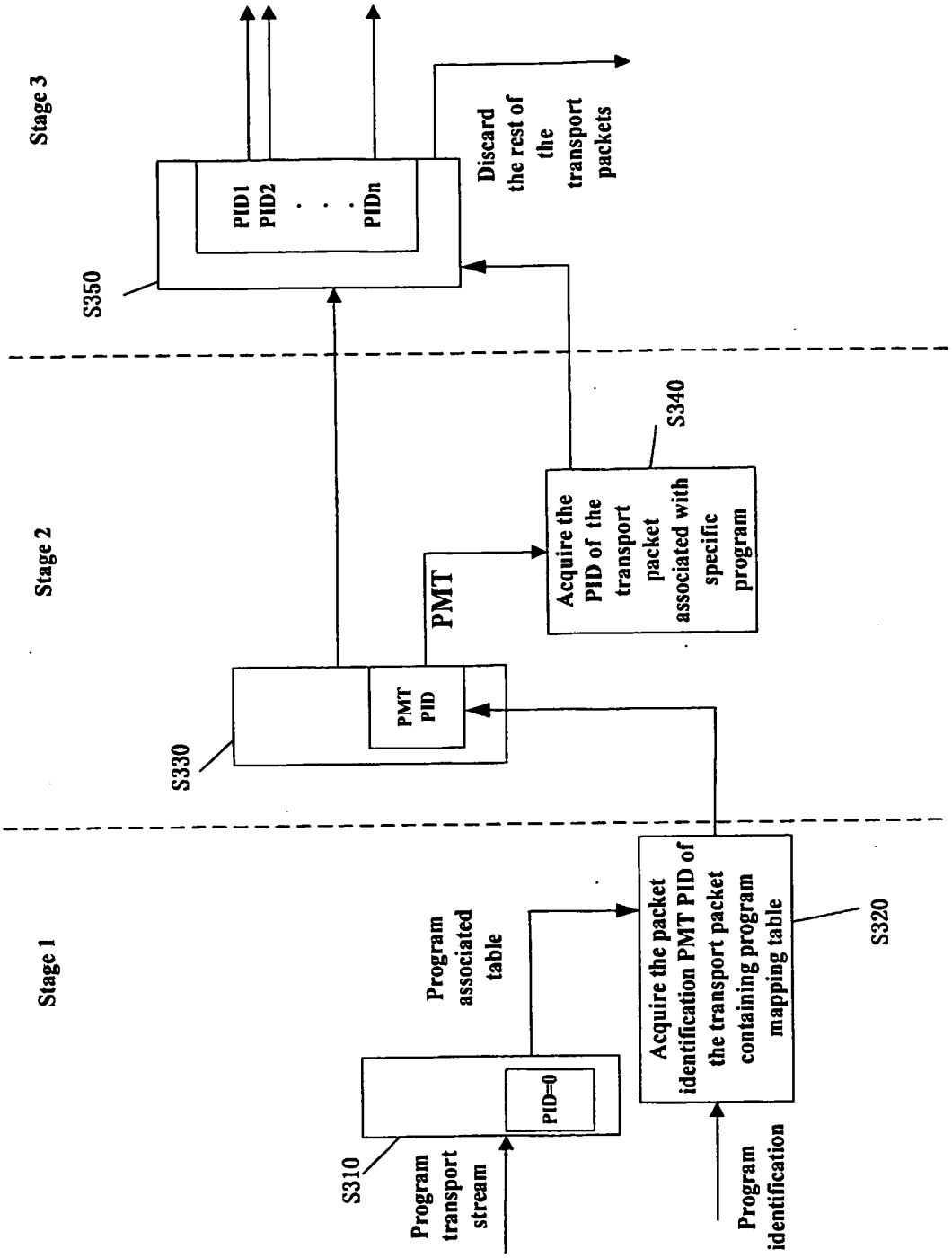
Stage 3
Stage 2
Stage 1
PID1
PID2
PIDn
Discard the rest of the transport packets
S350
S340
Acquire the PID of the transport packet associated with specific program
PMT
PMT PID
S330
Program associated table
Acquire the packet identification PMT PID of the transport packet containing program mapping table
S320
PID=0
S310
Program transport stream
Program identification

Fig.3

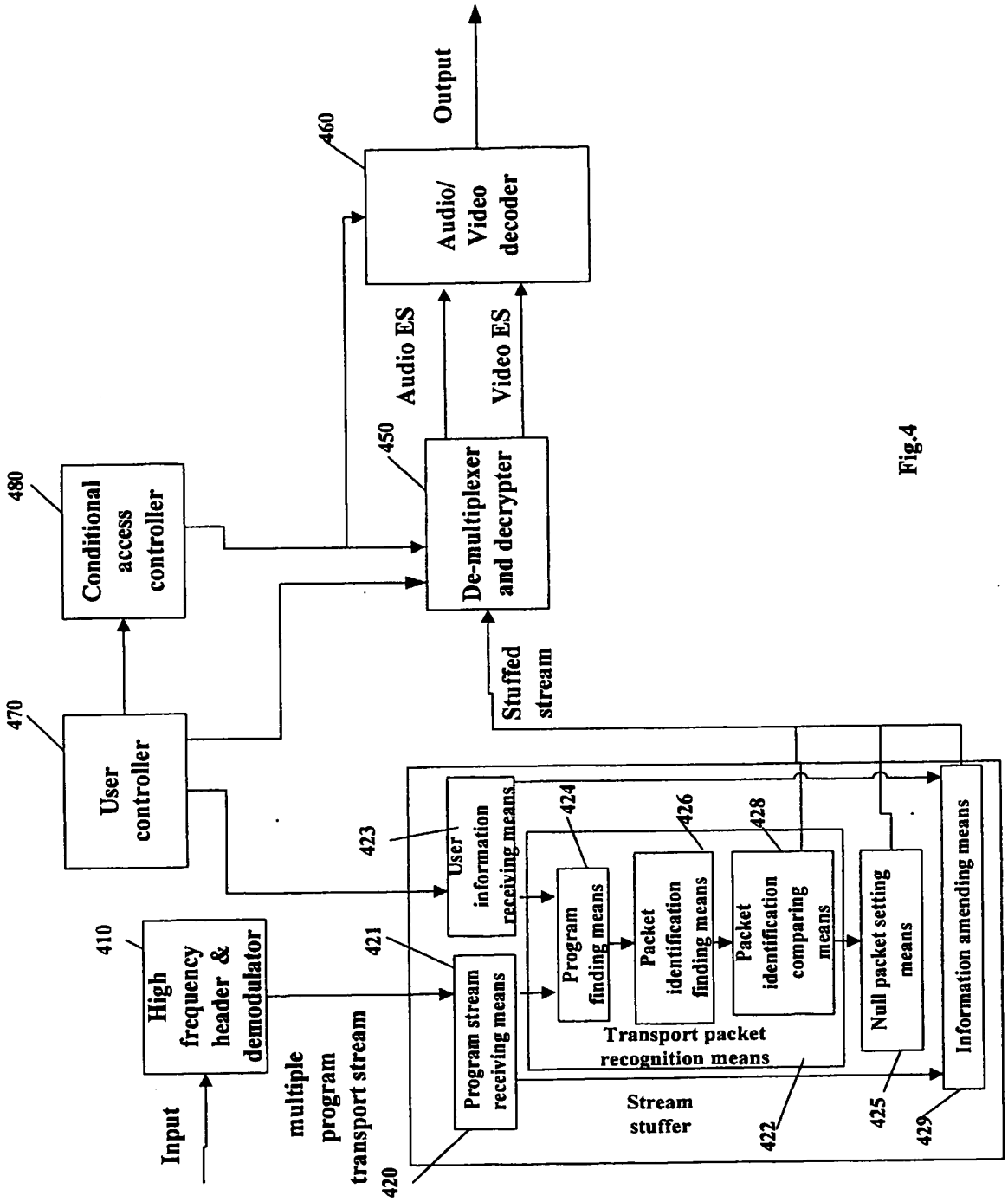
Input
multiple program transport stream
High frequency header & demodulator
410
User controller
470
Conditional access controller
480
Audio/ Video decoder
460
Output
Audio ES
Video ES
De-multiplexer and decrypter
450
Stuffed stream
Stream stuffer
420
Program stream receiving means
421
User information receiving means
423
Program finding means
424
Packet identification finding means
426
Packet identification comparing means
428
Transport packet recognition means
422
Null packet setting means
425
Information amending means
429

Fig.4

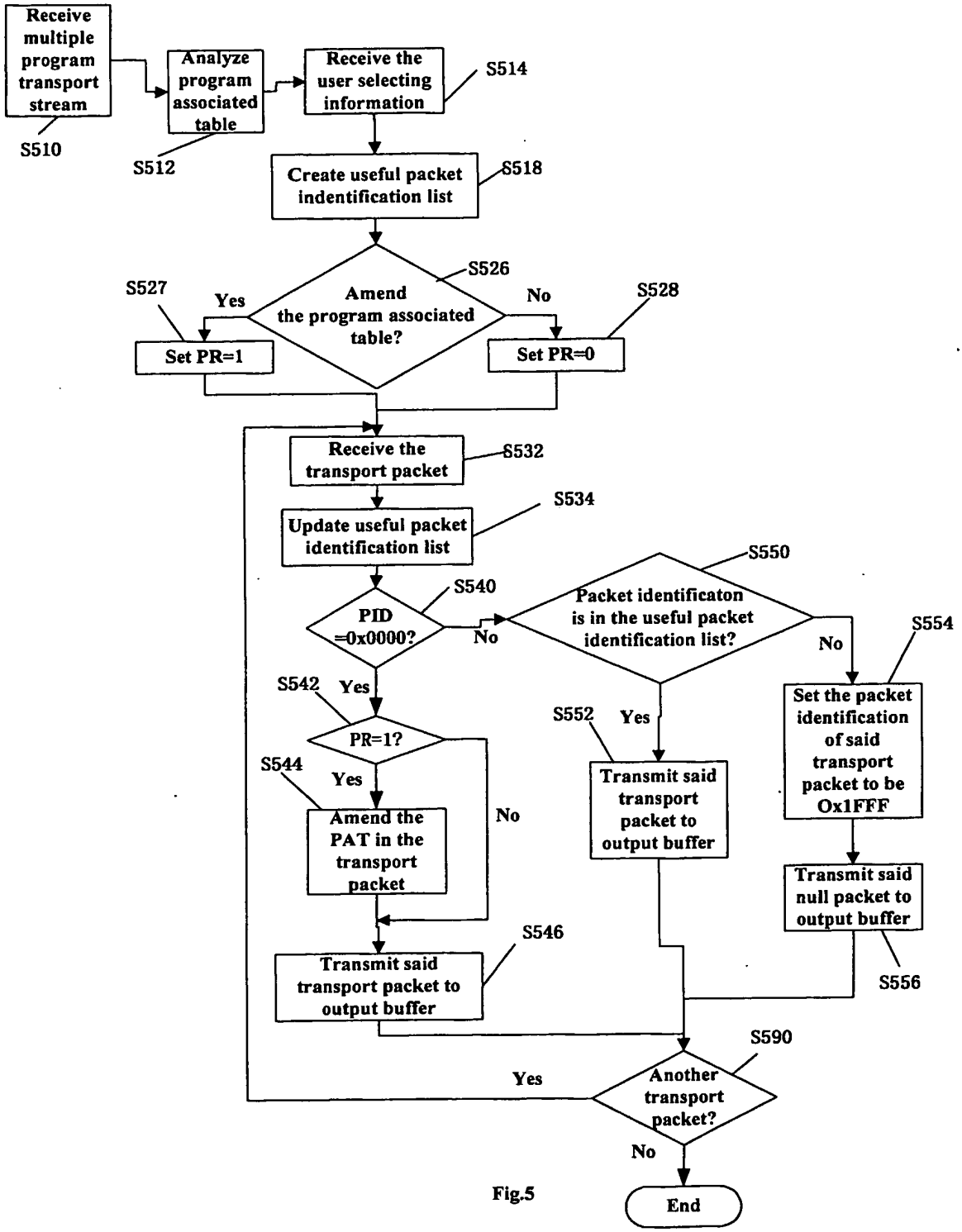
Receive multiple program transport stream
S510
Analyze program associated table
S512
Receive the user selecting information
S514
Create useful packet indentification list
S518
Amend the program associated table?
S526
Yes
S527
Set PR=1
No
S528
Set PR=0
Receive the transport packet
S532
Update useful packet identification list
S534
PID =0x0000?
S540
No
Packet identificaton is in the useful packet identification list?
S550
No
S554
Set the packet identification of said transport packet to be Ox1FFF
Transmit said null packet to output buffer
S556
S542
Yes
PR=1?
S544
Yes
Amend the PAT in the transport packet
No
S552
Yes
Transmit said transport packet to output buffer
Transmit said transport packet to output buffer
S546
S590
Another transport packet?
Yes
No
End

Fig.5

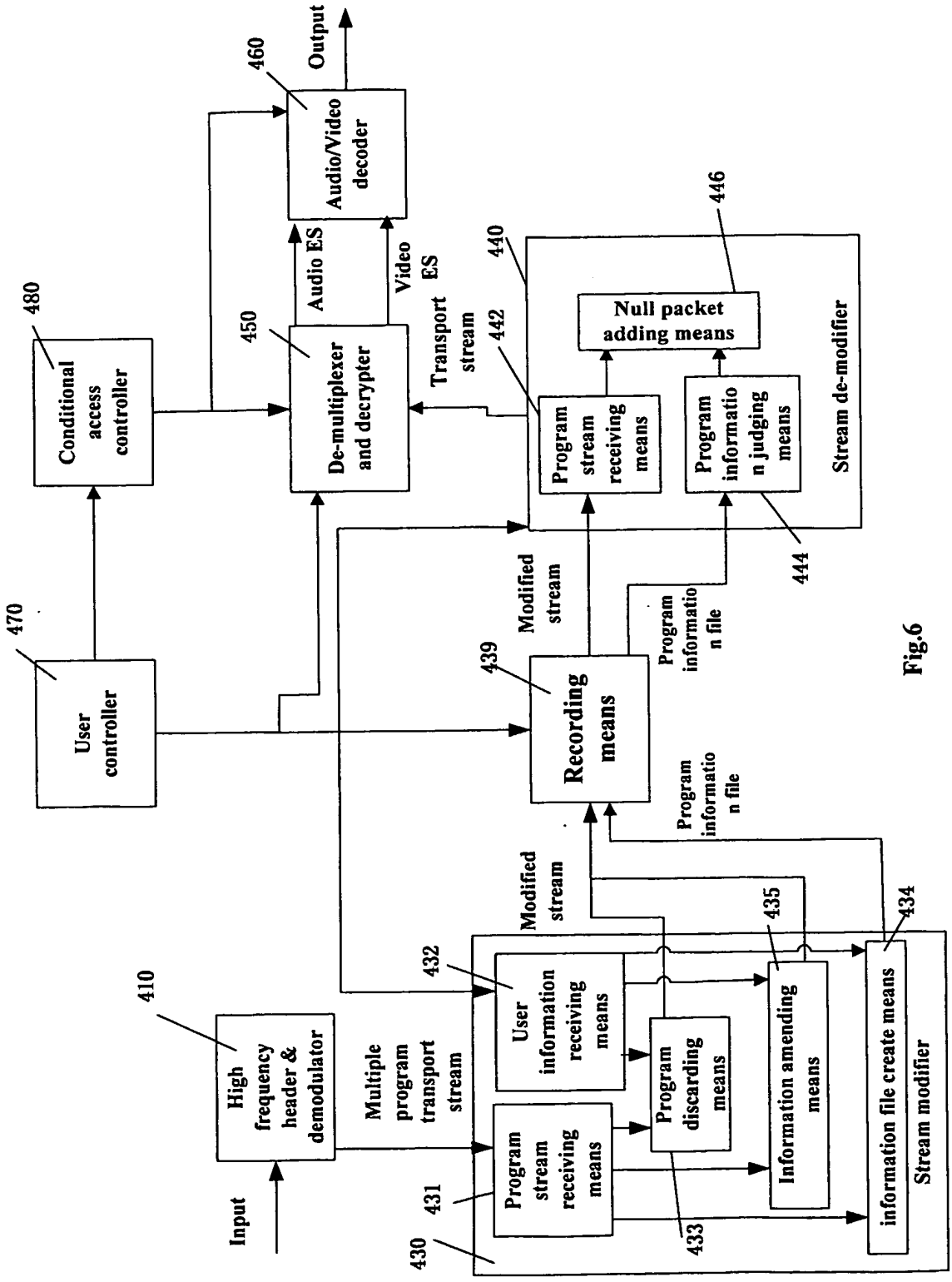
Output
460
Audio/Video decoder
Audio ES
Video ES
480
Conditional access controller
450
De-multiplexer and decrypter
Transport stream
442
440
446
Null packet adding means
Program stream receiving means
Program information judging means
Stream de-modifier
444
Modified stream
Program information file
470
User controller
439
Recording means
Program information file
Modified stream
435
434
410
High frequency header & demodulator
Multiple program transport stream
432
User information receiving means
Program discarding means
Information amending means
information file create means
Stream modifier
Input
431
Program stream receiving means
430
433

Fig.6

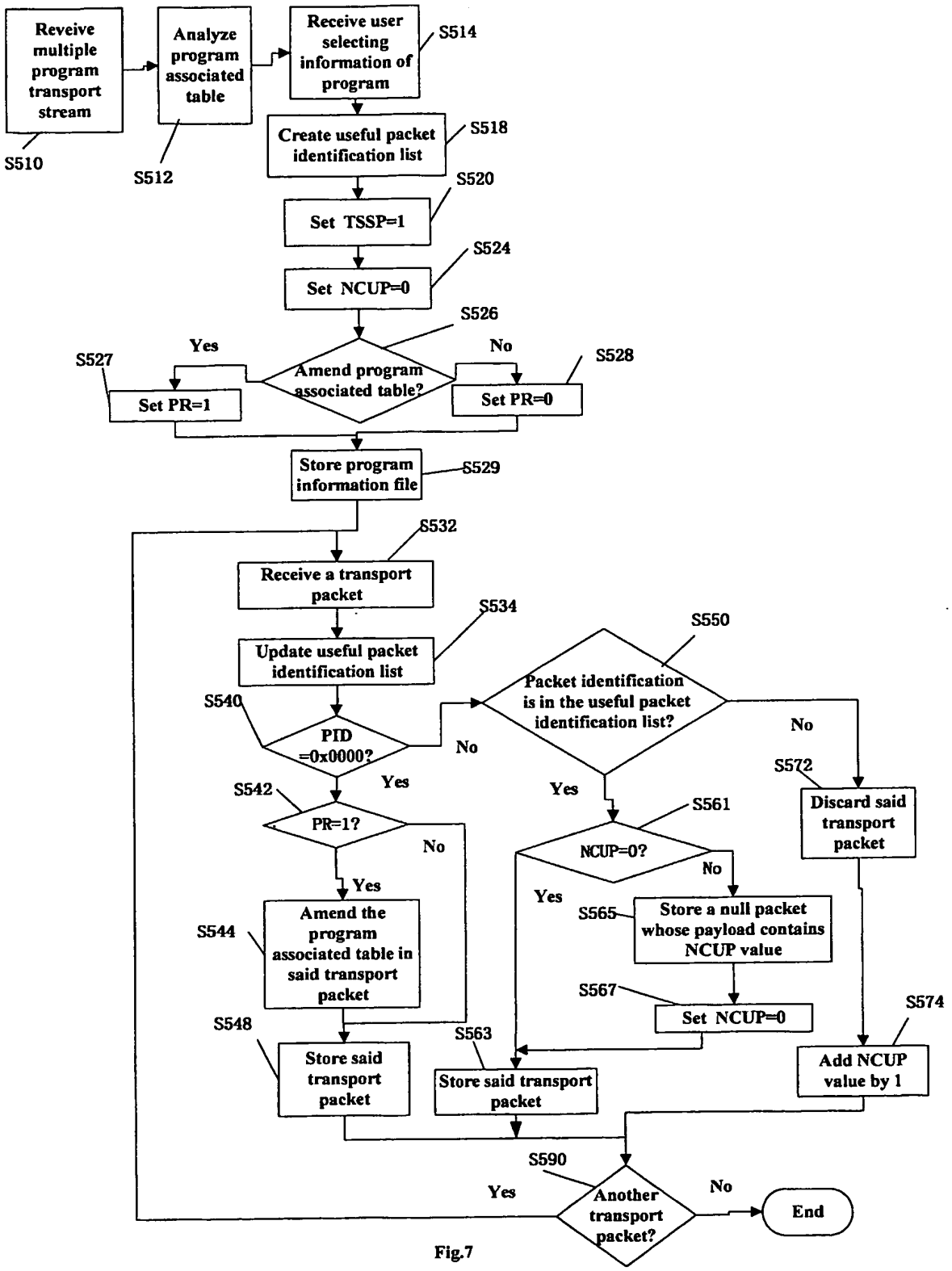
Reveive multiple program transport stream
S510
Analyze program associated table
S512
Receive user selecting information of program
S514
Create useful packet identification list
S518
Set TSSP=1
S520
Set NCUP=0
S524
Amend program associated table?
S526
Yes
S527
Set PR=1
No
S528
Set PR=0
Store program information file
S529
Receive a transport packet
S532
Update useful packet identification list
S534
PID =0x0000?
S540
No
Yes
PR=1?
S542
No
Yes
Amend the program associated table in said transport packet
S544
Store said transport packet
S548
Packet identification is in the useful packet identification list?
S550
No
Yes
NCUP=0?
S561
No
Yes
Store a null packet whose payload contains NCUP value
S565
Set NCUP=0
S567
Store said transport packet
S563
Discard said transport packet
S572
Add NCUP value by 1
S574
Another transport packet?
S590
Yes
No
End

Fig.7

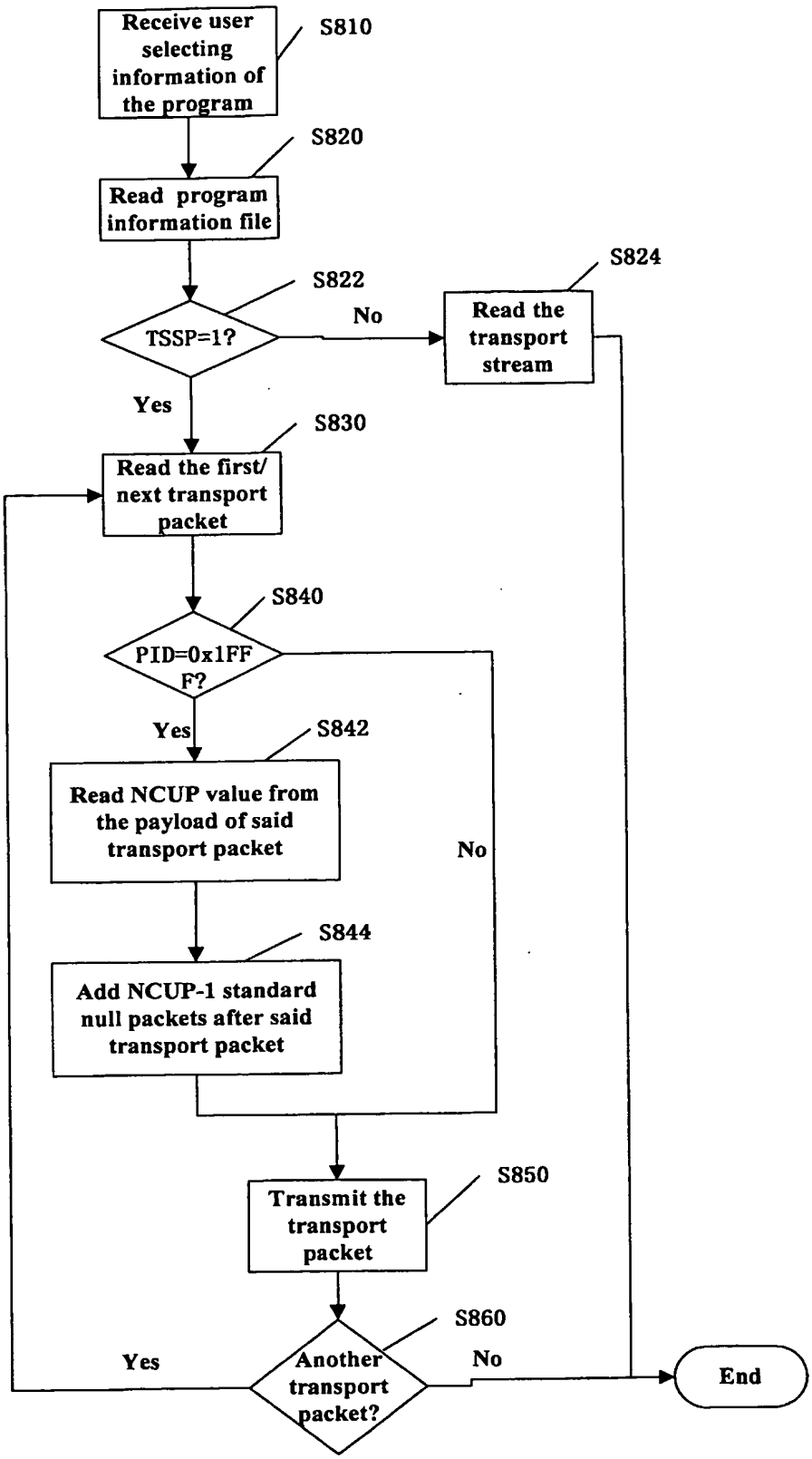
Receive user selecting information of the program
S810
S820
Read program information file
S822
TSSP=1?
No
S824
Read the transport stream
Yes
S830
Read the first/ next transport packet
S840
PID=0x1FFF?
Yes
S842
Read NCUP value from the payload of said transport packet
No
S844
Add NCUP-1 standard null packets after said transport packet
S850
Transmit the transport packet
S860
Another transport packet?
Yes
No
End

Fig.8